

a networking component configured to communicate with a digital holographic microscopy system to retrieve a plurality of training DHM images and a test DHM image;

a modeling processor configured to:

- identify one or more connected components in each of the plurality of training DHM images,
- generate one or more training white blood cell images from the one or more connected components,
- train a classifier to identify a plurality of white blood cell types using the one or more training white blood cell images as an input to the classifier,
- extract a test white blood cell image from the test DHM image, and
- apply the classifier to the test white blood cell image to determine a plurality of probability values, each respective probability value corresponding to one of the plurality of white blood cell types; and

a graphical user interface configured to present the test white blood cell image and the plurality of probability values.

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